UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,699	08/25/2003	Kazuhiko Mogi	NIT-392	1547

24956   7590   02/17/2005

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER
NGUYEN, THAN VINH

ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.

EXAMINER

ART UNIT	PAPER

20050215

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Than Nguyen
Examiner
Art Unit: 2187

	Application No.	Applicant(s)
Office Action Summary	10/646,699	MOGI ET AL.
	Examiner	Art Unit	
	Than Nguyen	2187	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *14,15,22 and 23* is/are allowed.
6)☒ Claim(s) *1-4,13,16,19-21 and 24* is/are rejected.
7)☒ Claim(s) *5-12,17 and 18* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>25 August 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☒ All b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____ .
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>8/25/03</u>.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-23 are pending.

2.   The IDS, filed 8/25/03, has been considered.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.   Claim 13 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Applicant claims a computer-executable program, which is nonstatutory, by itself. In order for his claimed invention to be statutory, the computer program must be on a computer readable medium.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.   Claim 19 recites the limitation "table and index data" in line 1 of claim. There is insufficient antecedent basis for this limitation in the claim. Claim 16 does not set any precedence for "table and index data".

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8.   Claims 1-4,13,16,19-21,24 are rejected under 35 U.S.C. 102(b) as being anticipated by

Mattson et al (US 4,463,424).

As to claim 1,2,13,16:

Mattson teaches the claimed device for setting cache space in a data processing system.

Mattson teaches the device comprising: means for acquiring information about process details to

be executed by the data management system (system receiving process/command; 7/15-22,5/25-

35); means for acquiring information about data mapping from the computer and the storage

device (system check mapping/addressing; 5/65-68, 29-33); means for creating planned cache

space settings, using the acquired information (system allocating cache; 5/35-40); and means for

directing the storage device to activate cache space settings according to the planned cache space

settings (system activate/perform allocation; 2/65-3/5; 5/15-6/30).

As to claim 3:

Mattson teaches storage control means which are connected to the computer and the

storage device and controls data transfer between both (manages storage; 4/25-30); mapping

means for defining mapping to data on the databases in the storage control (system

mapping/addressing; 5/55-67); and means for acquiring information about mapping of data on

the databases from the mapping means (system check mapping/addressing; 5/65-68, 29-33).

As to claim 4:

Mattson teaches all the means are functions realized in the computer, the storage device

or, the storage control means (all functions on computer system; 2/62-67).

As to claim 19:

9.   Mattson teaches a database storing data structure, which comprises

data/index/information (2/60-67; 4/40-45).

As to claim 20:

10.   Mattson teaches the DBMS manages its own cache and the data cache of the storage

device, regarding the caches as a single cache entity (2/65-3/5). ·

As to claim 21:

11.   Mattson issuing a caching request from the DBMS to the storage device to cache data

from a storage location within the storage device to the data cache and issuing a write request

with the caching request to cache data which has just been written to the cache within the DBMS

to the data cache within the storage device (issue read/write cache requests5/53-67; 7/18-25).

As to claim 24:

Mattson teaches the means for acquiring information acquire data mapping information from the

database management system, a file system, and a volume manager included on the computer

(2/62-3/34).

Allowable Subject Matter

12.   Claims 5-12,17,18 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

13.   As to claim 5, the prior art does not further teach the administrative device includes

means for acquiring, as information about the process details to be executed by the data

management system, SQL statements to be executed for the process and an expected count of

execution of the SQL statements.

14.   Claims 6,9 are also allowable for incorporating the limitations of claim 5, and further

limitations.

15.   As to claim 7, the prior art does not teach further having means for acquiring information

about performance of rerun of processes after abnormal termination of the database management

system and information about rerun time settings after abnormal termination of the database

management system; and means for creating planned cache space settings for logs which the data

base management system outputs as the planned cache space settings on the storage device.

16.   As to claim 8, the prior art does not teach further having means for further acquiring, as

information about the process details to be executed by the data management system,

information about size of data to be accessed during the process execution, information about

distribution of access to data to be accessed during the process execution, and information about

cache space available in the database management system and the storage device; and means for

creating planned cache space settings for tables and indexes which are data which the database

management system manages as the planned cache space settings on the storage device.

17.   As to claim 10, the prior art does not further teach means for acquiring, as information

about the process details to be executed by the data management system, the number of expected

data pages to access in tables and indexes which are data which the database management system

manages during the process.

18.   Claims 11-12 are also allowable for incorporating the limitations of claim 10, and further

limitations.

19.   As to claim 17, the prior art does not teach further determining the data quantity of data

pages to store data except leaf nodes for each data structure and allocating space available in the

cache of the DBMS as much as the data quantity thus determined to each data structure; and

determining the data quantity of data pages to store leaf nodes and allocating space available in

the data cache of the storage device as much as the data quantity thus determined and space

available in the cache of the DBMS by a predetermined ratio to the corresponding data cache

space to each data structure.

20.   As to claim 18, the prior art does not teach further comprising the steps of: in the data

processing system, virtualizing the disk storage units into a plurality of logical disk storage units;

dividing the whole data cache space into groups having storage areas in units of the logical disk

storage units; identifying a logical disk storage unit to which logs should be stored and a cache

group under which the logical disk storage unit falls from mapping information; and directing the

storage device to activate the cache group thus identified and cache space settings of storage

areas for the cache group.

21.   Claims 14,15,22,23 are allowed.

22.   As to claim 14, the prior art does not teach the claimed method for managing a data cache

in a data processing system. More specifically the prior art does not teach the method

comprising the combination of steps of: allocating cache storage areas based on a maximum

number of processes that can be executed on a rerun, determining the determining maximum

data size of logs to be output by the SQL statements to do UPDATE/INSERT and estimating log

size required, based on the log data size per process and the maximum number of processes that

can be executed during a rerun.

23.   Claim 15 is also allowable for incorporating the limitations of claim 14, and further

limitations.

24.   As to claim 22, the prior art does not teach the claimed method for optimum caching

management for data cache in a data processing system. More specifically, the prior art does not

teach checking statistics about a count of occurrences of wait when accessing data pages of data

structures within the DBMS to identifying processes involving access to a data structure for

which it has been determined that wait has occurred with high frequency and obtaining the

number of expected data pages to access in the data structure; checking for a process which takes

long execution time and accessed many times the data structure for which wait has occurred with

high frequency among the processes involving access to the data structure and tailoring cache

allocations to enhance a cache hit rate of the data to be accessed during the process execution to

shorten the execution time of the process.

25.   Claim 23 is also allowable for incorporating the limitations of claim 22, and further

limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The

examiner can normally be reached on 8am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Donald Sparks can be reached on (571)272-4201. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Than Nguyen
Examiner
Art Unit 2187